CLAIMS

What is claimed is:

1. A method for fabricating a MEMS device, the method comprising:

processing a pre-fabricated thin film stack to define the MEMS device.

2. The method of claim 1, wherein the pre-fabricated thin film stack comprises at least a first layer of a conductive material, a second layer of an insulator material, and a third layer of a sacrificial material.

3. The method of claim 1, wherein the processing comprises operations selected from the group consisting of etching, patterning, and deposition.

4. A precursor film stack for use in the production of MEMS devices, the precursor film stack comprising:

a carrier substrate;

a first layer formed on the carrier substrate;

a second layer of an insulator material formed on the first layer; and

a third layer of a sacrificial material formed on the second layer.

5. The stack of claim 4, wherein the first, the second, and the third layers are formed using a deposition technique.

6. The stack of claim 4, wherein the first layer is of a conductive material is selected from the group consisting of a single metal, a conductive oxide, a fluoride, a silicide, and a conductive polymer.

7. The stack of claim 4, wherein the insulator material is selected from the group consisting of an oxide, a polymer, a fluoride, a ceramic and a nitride.

8. The stack of claim 4, wherein the sacrificial material is etchable using a Xenon difluoride gas.

9. The stack of claim 4, wherein the sacrificial material is selected from the group consisting of silicon, molybdenum, and tungsten.

10. The stack of claim 4, further comprising an optical compensation layer deposited between the first layer and the carrier substrate, the optical compensation layer including a material of a finite extinction coefficient.

11. The stack of claim 10, wherein the optical compensation layer includes materials selected from the group consisting of Zirconia, Hafnia, an oxide, a nitride, and a flouride.

12. The stack of claim 4, where the first layer comprises a plurality of sublayers, at least some of the sublayers being of a conductive material.

13. The stack of claim 12, wherein the sublayer furthest from the carrier substrate is non-conductive and defines an optical layer.

14. The stack of claim 4, further comprising an optical layer deposited between the second and third layers.

15. The stack of claim 4, wherein the third layer comprises at least two sublayers, each sublayer alternating with the other, wherein each sublayer can be etched by the same release etchant, but has a different etch chemistry so that the sublayers define etch stops for each other.

16. The stack of claim 15, wherein the third layer includes a sublayer of molybdenum that alternates with a sublayer of silicon.